

Serial No. 10/693,494
Docket No. US01-03014

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) An image display apparatus comprising:

a display having an image display surface which displays a two-dimensional image;

and

an image transmitting panel spaced apart from the image display surface for creating an imaging plane displaying a real image of the two-dimensional image in a space opposite to the display,

wherein the image transmitting panel and the imaging plane are non-parallel with each other, so that said real image displayed opposite said display has an enhanced three-dimensional impression of said two-dimensional image by providing an illusion of depth in the displayed real image that is consistent with a three-dimensional object.

2. (Original) The image display apparatus according to claim 1, wherein the image transmitting panel includes at least one micro lens board, each micro lens board having an array of a plurality of micro lenses arranged two-dimensionally, the micro lenses defines at least one lens system, each lens system having a pair of convex lenses coaxial with each other, and optical axes of the lens systems are parallel with each other.

3. (Original) The image display apparatus according to claim 2, wherein the image display surface of the display is positioned within a focal depth of the plurality of lenses.

4. (Original) The image display apparatus according to claim 2, wherein the image display surface of the display is positioned at a non-right angle to the optical axes of the lens systems.

Serial No. 10/693,494
Docket No. US01-03014

5. (Original) The image display apparatus according to claim 4, wherein the plurality of lenses have focal lengths in an image side such that the imaging plane has a flat shape and inclines toward the array of the micro lenses.
6. (Original) The image display apparatus according to claim 4, wherein the plurality of lenses have focal lengths in an image side such that the imaging plane has a curved shape and inclines toward the array of the micro lenses.
7. (Previously presented) The image display apparatus according to claim 1, wherein the image display surface of the display displays an image having a heightened impression of a third-dimensional perspective along an inclined direction of the imaging plane.
8. (Previously presented) The image display apparatus according to claim 1, wherein the image display surface of the display displays an image such that a series of images presenting a moving image has a heightened impression of moving along an inclined direction of the imaging plane.
9. (Original) The image display apparatus according to claim 2, wherein the apparatus includes a plurality of arrays of micro lenses connected to the image transmitting panel at a predetermined angle for creating a plurality of imaging planes.
10. (Currently amended) An image display apparatus comprising:
a display having an image display surface which displays a two-dimensional image;
and
an image transmitting panel spaced apart from the image display surface for creating

Serial No. 10/693,494
Docket No. US01-03014

an imaging plane displaying a real image of the two-dimensional image in a space opposite to the display,

wherein the apparatus includes a non-parallel area, in which the image transmitting panel and the imaging plane are non-parallel with each other, and a parallel area in which the image transmitting panel and the imaging plane are parallel with each other, and said real image displayed opposite said display has an enhanced three-dimensional impression of said two-dimensional image by providing an illusion of depth in the displayed real image that is consistent with a three-dimensional object.

11. (Previously presented) The image display apparatus according to claim 10, wherein the image transmitting panel includes a micro lens board having an array of a plurality of micro lenses arranged two-dimensionally covering the non-parallel area and the parallel area, the micro lenses in each area together defining at least one lens system, each lens system having a pair of convex lenses coaxial with each other, and optical axes of the lens systems are parallel with each other.

12. (Original) The image display apparatus according to claim 11, wherein the image display surface of the display is positioned within a focal depth of the plurality of lenses.

13. (Original) The image display apparatus according to claim 11, wherein the image display surface of the display in the non-parallel area is positioned at a non-right angle to the optical axes of the lens systems.

14. (Original) The image display apparatus according to claim 13, wherein the plurality of lenses in the non-parallel area have focal lengths in an image side such that the imaging plane

Serial No. 10/693,494
Docket No. US01-03014

has a flat shape and inclines toward the array of the micro lenses.

15. (Original) The image display apparatus according to claim 13, wherein the plurality of lenses in the non-parallel area have focal lengths in an image side such that the imaging plane has a curved shape and inclines toward the array of the micro lenses.

16. (Previously presented) The image display apparatus according to claim 10, wherein the image display surface of the display in the non-parallel area displays image having a heightened impression of a third-dimensional perspective along an inclined direction of the imaging plane.

17. (Previously presented) The image display apparatus according to claim 10, wherein the image display surface of the display in the non-parallel area displays an image such that a series of images presenting a moving image has a heightened impression of moving along an inclined direction of the imaging plane.

18. (Currently amended) An image display apparatus providing an enhanced impression of an optical perspective, said apparatus comprising:

at least one micro lens array assembly comprising a plurality of convex micro lenses arranged in at least one convex micro lenses matrix to thereby form a lens system; and

for each said at least one micro lens array assembly, a display located relative to said micro lens array assembly to project a two-dimensional image through said micro lens array assembly to be focused on an opposite side thereof as an imaging plane,

wherein said imaging plane provides an enhanced three-dimensional impression of said two-dimensional image by providing an illusion of depth in the displayed real image that

Serial No. 10/693,494
Docket No. US01-03014

is consistent with a three-dimensional object.

19. (Previously presented) The apparatus of claim 18, wherein each said micro lens array assembly comprises a micro convex lens board having two lens array halves, each said lens array half comprising a transparent flat plate with a plurality of convex lenses arranged in a matrix on each flat surface thereof.

20. (Previously presented) The apparatus of claim 19, wherein said enhanced three-dimensional impression is caused by at least one of:

locating said least one micro lens array assembly relative to said display in an inclined orientation; and

providing a gradual change of curvature of said convex lenses on at least one said flat surface of at least one of said two lens array halves.

21. (Previously presented) The apparatus of claim 20, further comprising a plurality of micro lens array assemblies with a corresponding display, wherein each said micro lens array assembly and its corresponding display separately provides an enhanced three-dimensional impression, thereby providing a composite image having different components of enhanced third-dimensional impressions.

22. (Previously presented) The apparatus of claim 18, wherein said imaging plane is flat.

23. (Previously presented) The apparatus of claim 18, wherein said imaging plane is curved.

24. (Previously presented) A method of providing an enhanced three-dimensional

Serial No. 10/693,494
Docket No. US01-03014

impression of a two-dimensional image, said method comprising:

providing a micro lens array assembly comprising a plurality of convex micro lenses arranged in at least one matrix to thereby form a lens system; and

projecting a two-dimensional image through said micro lens array assembly to be focused on an opposite side as an imaging plane,

wherein said enhanced third-dimensional impression is caused by at least one of:

locating said least one micro lens array assembly relative to said display in an inclined orientation; and

providing a gradual change of curvature of said convex lenses in at least one said matrix of convex micro lenses.